

ALL mechanical work shall be free from defects in workmanship and materials for a period of one (1) year from date of final acceptance and shall meet all local and state codes. All defects, which develop or are discovered within this period shall be repaired by the Contractor to the satisfaction of the Engineer and at no additional cost to the Authority.

1. The Contractor shall examine the site of the proposed work to determine the existing conditions that may affect his work.
2. It is the intention of the Contract Drawings and Specifications to call for finished work, tested and ready for operation. All materials shall be new and of first-quality.
3. All material, work, inidental accessories or other details not shown but necessary to make the work complete and perfect, and in all respects ready for operation, even if not particularly specified, shall be provided by the Contractor at no additional cost to the Authority.
4. The Contract Drawings are generally diagrammatic and are intended to convey the scope of work and indicate general arrangement of ductwork and pouches, and induction units. Existing ducts, pipes, utilities, etc. that are damaged during construction period, whether or not due to the Contractor's negligence they shall be repaired or replaced by the Contractor and left in a condition satisfactory to the Engineer.
6. Coordinate locations of all pouches with architectural reflected ceiling plans.
7. The space around pipes, ducts, etc. penetrating rated walls, shall not exceed 1/2" and shall be packed solid with mineral wool or equivalent. Perimeter shall be closed off by tight fitting metal escutcheons on both sides of this construction as required by Sections C26-506.5, of N.Y.C. Building Code.

1. The Authority shall furnish to the Contractor materials in the quantities as shown below for installation in the permanent construction. The furnishing and installation of any materials in excess of the quantities shown below shall be the responsibility of the Contractor.

- a. Light fixture air pouches 7 (DOUBLE)
- b. Round flexible duct for air connection to pouch-7
- c. Induction Units 1- ONE & ONE HALF CAPACITY

1. The Contractor shall deliver all excess materials as shown below to a designated area in the W.T.C. complex as directed by the Engineer.

- ~~a. Light fixture air pouches~~
~~b. Round flexible duct for air connection to pouch~~
c. Induction Units - 1-FULL CAPACITY UNIT

1. The Contractor shall purchase the following materials from the Authority as required for the installation.

- a. Light fixture air pouches
- b. Round flexible duct for air connection to pouch
- c. Induction Units

1. All ductwork shall be furnished, installed and fabricated in accordance with the latest edition of the SMACNA Low Velocity Duct Construction Standards Manual, using prime sheets of galvanized steel. All square elbows shall be provided with turning vanes on maximum 4" centers. Provide access doors at all fire and automatic dampers for access.
2. All branches, ~~and~~ take-offs, AND FINGER DUCTS SHALL BE EQUIPPED WITH VOLUME CONTROLLERS.
3. All Finger ducts and flexible connectors shall be 7/8" unless otherwise indicated on drawing.
4. Support horizontal ducts with hangers secured to structural steel above at intervals not exceeding 8'0". Install additional steel as required.
5. Flexible connections to the supply duct and the diffuser plenum of ceiling pouches shall be sealed with 3M Co. 800 sealant and clamped with Stainless Steel Ideal Type 52 clamps.
6. All access doors shall be as per latest SMACNA Standards.
7. A minimum existing 4" round flexible duct connection that penetrates the 2 hr. rated closure panel within the induction unit cover. Install new 4" - 26 gauge galvanized steel circular duct, seal all joints with 3M Co. 800 sealant and stainless steel adjustable type clamps. A maximum length of 4' - 0" of flexible ductwork shall be used for connection to the induction Units.

1. Install where shown on the drawing, a factory assembled high pressure air-water induction unit, summer winter room air conditioning unit, properly connected to primary air condenser and water piping. Induction unit shall be as manufactured by Carrier for the World Trade Center Model #36SL60B-1 - Type 6T. The unit shall deliver 90 cfm with a cooling capacity of 64.5 BTU and heating capacity of 76.5 BTU.
2. Support and fasten unit to prevent all vibration, providing all required wall brackets supporting legs and leveling devices. Unit support method shall be subject to the approval of the Engineer and be similar to the method used for the existing unit.
3. The Contractor shall adjust induction unit performance as shown on the drawing.
4. The air connection to the induction unit shall be made with "Thermaxflex" Type 5-TL as manufactured by Automated Industrial or approved equal, of sizes shown, but not less than the full size indicated on the drawing. The connections shall be sealed with Minnesota Mining & Mfg. Co. 800 sealant and clamped with Ideal Type 52 hose clamps, or approved equal. Flexible connections that penetrate rated closures shall be installed as specified.

All piping connecting to the induction unit shall be Copper ASTM B-88, soft (annealed) Type L and fittings shall be standard weight, wrought copper and solder type. All soldered joints shall be made with 95-5 Tin Antimony Solder having a melting point greater than 450°F. All soldered joints shall be thoroughly cleaned before the application of the solder. All insulation shall match existing.

The Contractor shall provide lint screens and air transfer fittings for specified induction units.

Fire damper are based on Air Balance, Model #119 Type AL, B1, & C1. It shall be installed in accordance with the manufacturer's approved installation instructions and shall be N.Y.C. Board of Standards and Appeals (B.S.A.), Underwriters Laboratories (U.L.) approved and labeled.

Vibration hangers shall be HDA-Black (4 Req'd.) as manufactured by Mason Industries or an approved equal.

The Contractor shall furnish and install exhaust fans of the size and capacity as shown on the Fan Schedule. Fans shall be similar or equal to those as manufactured by Greenheck Fan Ventilator Corporation.

1. All supporting steel shall conform to ASTM Designation A-36
2. Patch existing beam fire proofing where removed
3. All nuts to have lock washers
4. Contractor to verify and field measure existing conditions
5. Paint all steel

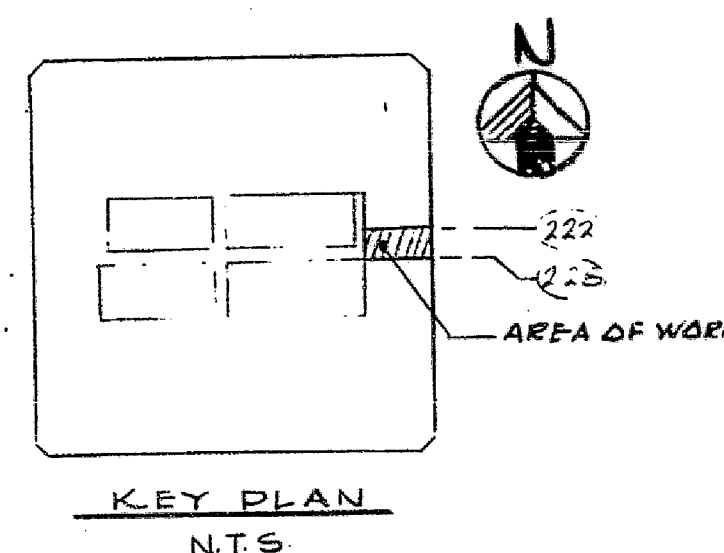
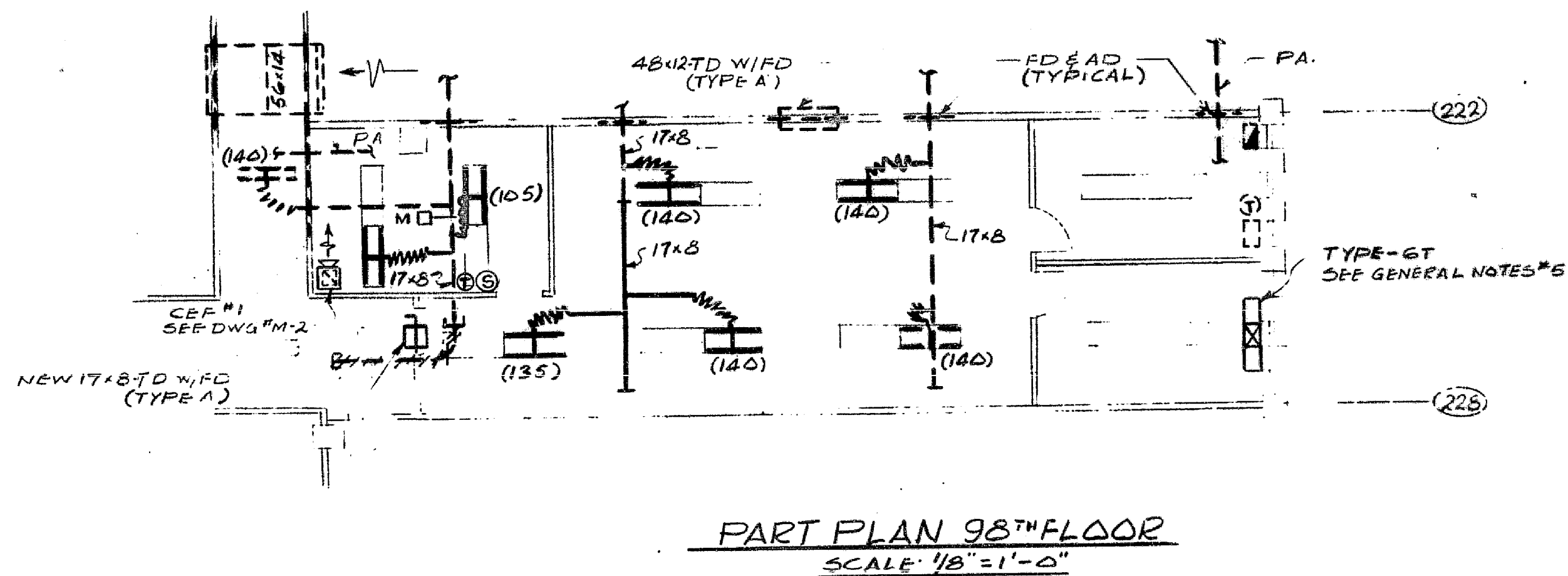
1. Electr. modulating opposed blade damper motor shall be Honeywell M944A1010 for 240V A.C. operation with Transformer as required for 120V Service or an approved equal.
2. Thermostat shall modulate damper from fully open to 20% open - shall be Honeywell T92 A1191 to match motor operated damper M944A1010 or an approved equal.

Model numbers specified are manufactured by Anemostat-Waterloo or an approved equal. All finishes shall be baked white enamel.

1. Registers (Supply):	shall be Model S2VO
2. Registers (Return):	shall be Model S3HD
3. Grilles (Return):	shall be Model S3HD
4. Diffusers (Supply):	shall be Model DE with No. 41 core pattern (4-way)
	shall be Model DF with No. 21 core pattern (2-way)
	shall be Model DF with No. 11 core pattern (1-way)
5. Linear Supply Diffusers:	shall be Model SLAD-F-50, 2-1/2" slot widths (Horizontal Projection)
6. Linear Return Diffusers:	shall be Model SLAD-F-50, 2-1/2" Slot widths
7. Damper:	Damper for diffusers shall be Model D08.


All systems shall be balanced in accordance with the latest standards of the "Associated Air Balance Council" and subject to the approval of the Engineer.


Submit for approval three (3) sets of shop drawings of ductwork and details of fire damper installation. Submit three (3) sets of catalog cuts for fire damper, exhaust fan, ~~ceiling grilles, ceiling diffusers, linear diffusers, ceiling or side blow registers~~ and three copies of air balancing data report.




THIS DRAWING SUBJECT TO CONDITIONS IN CONTRACT. ALL INVENTIONS, IDEAS, DESIGNS AND METHODS HEREIN ARE RESERVED TO PORT AUTHORITY AND MAY NOT BE USED WITHOUT ITS WRITTEN CONSENT.

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	NO.	DATE	APPD.	DESCRIPTION	NO.	DATE	APPD.	DESCRIPTION


 ASSIST. CHIEF ENGINEER
 OF DESIGN


 ENGINEER OF DESIGN
 AIRPORTS & HNTC


 CHIEF MECHANICAL
 ENGINEER

FEB. 26, 1980
 DATE

THE PORT AUTHORITY OF NY & NJ
THE WORLD TRADE CENTER
TOWER A 98TH FLOOR
TANGENT INTERNATIONAL
COMPUTER CONSULTANTS, INC.

MECHANICAL
PART PLAN & SPECIFICATION
CONTRACT NO. WTC-577199 DRAWING NO. M-1